

## CLAIMS

What is claimed is:

1           1.     A stop for a drill bit, said drill bit having an elongate body rotatable  
2     about an axis, a tip at one end of said body for drilling into a surface, a second end of  
3     said body opposed to said tip for coupling said bit to a drill, and an engagement region  
4     on the exterior of said body between said tip and said second end, said stop  
5     comprising:

6                 a first sleeve for adjusting a position of said stop relative to said tip of said  
7     drill bit, said first sleeve having a first thread adapted to engage said engagement  
8     region on said drill bit, and a second thread having a pitch different from that of said first  
9     thread, said first sleeve being rotatably mounted to said drill bit about said engagement  
10    region, said first sleeve providing one of fine adjustment and coarse adjustment of said  
11    position of said stop with respect to said drill bit tip; and

12                a second sleeve concentrically coupled to said first sleeve for adjusting  
13    said position of said stop relative to said tip of said drill bit, said second sleeve having a  
14    thread adapted to engage said second thread of said first sleeve, said second sleeve  
15    being rotatably mounted to said first sleeve, said second sleeve also providing the other  
16    of fine adjustment and coarse adjustment of said position of said stop, said second  
17    sleeve defining a shoulder for limiting a depth of penetration of said drill bit into an  
18    object.

1                   2.     The stop of claim 1, wherein said first sleeve has an axis of rotation  
2     which is co-incident with said axis of said drill bit.

3

1                   3.     The stop of claim 2, wherein said second sleeve has an axis of  
2     rotation which is co-incident with said axis of said drill bit.

1                   4.     The stop of claim 1, wherein said engagement region is one of a  
2     cutting groove of said drill bit and an engagement threading of said drill bit.

1                   5.     The stop of claim 1, wherein at least one of said first and second  
2     sleeves includes indicia operatively associated therewith representing the distance  
3     between said tip of said drill bit and said shoulder, measured along said axis of said drill  
4     bit.

1                   6.     The stop of claim 5, wherein said indicia include fine adjustment  
2     indicia for monitoring fine adjustment of said distance.

1                   7.     The stop of claim 6, wherein said fine adjustment indicia is  
2     disposed on said first sleeve so that an end of said second sleeve opposite to said  
3     shoulder covers a portion of said fine adjustment indicia as said second sleeve is  
4     rotated about said first sleeve, to provide a visual indication of a fine position of said  
5     shoulder relative to said tip of said drill bit.

1           8.     The stop of claim 5, wherein said indicia include coarse adjustment  
2 indicia for monitoring coarse adjustment of said distance.  
3

1           9.     The stop of claim 8, wherein said coarse adjustment indicia is  
2 disposed on said drill bit so that an end of said first sleeve closest to said opposed end  
3 of said drill bit covers a portion of said coarse adjustment indicia as said first sleeve is  
4 rotated about said drill bit, to provide a visual indication of a coarse position of said  
5 shoulder relative to said tip of said drill bit.

1           10.    The stop of claim 8, wherein said indicia include fine adjustment  
2 indicia for monitoring fine adjustment of said distance.

1           11.    The stop of claim 10, wherein said fine adjustment indicia is  
2 disposed on said first sleeve so that an end of said second sleeve opposite to said  
3 shoulder covers a portion of said fine adjustment indicia as said second sleeve is  
4 rotated about said first sleeve, to provide a visual indication of a fine position of said  
5 shoulder relative to said tip of said drill bit.

1           12.    The stop of claim 11, wherein said coarse adjustment indicia is  
2 disposed on said drill bit so that an end of said first sleeve closest to said opposed end  
3 of said drill bit covers a portion of said coarse adjustment indicia as said first sleeve is

4 rotated about said drill bit, to provide a visual indication of a coarse position of said  
5 shoulder relative to said tip of said drill bit.

1 13. The stop of claim 1, wherein said first sleeve includes a knurled  
2 surface for providing means for gripping said first sleeve to rotate said first sleeve  
3 relative to said drill bit.

1 14. The stop of claim 1, wherein said first sleeve includes at least one  
2 outwardly extending projection for providing means for gripping said first sleeve to rotate  
3 said first sleeve relative to said drill bit.

1 15. The stop of claim 1, wherein:  
2 said second thread of said first sleeve is disposed on the exterior of said first  
3 sleeve;  
4 said thread of said second sleeve is disposed on the interior of said second  
5 sleeve; and  
6 said second sleeve is rotatably mounted on the exterior of said first sleeve.

1 16. The stop of claim 1, wherein:  
2 said second thread of said first sleeve is disposed on the interior of said first  
3 sleeve;

4           said thread of said second sleeve is disposed on the exterior of said second  
5 sleeve; and

6           said second sleeve is rotatably mounted on the interior of said first sleeve.

1           17.   The stop of claim 1, further comprising at least one lock for locking  
2 one of said first and second sleeves in a desired position.

1           18.   The stop of claim 17, wherein said lock is a set screw.

1           19.   The stop of claim 1 further comprising:  
2           a centering member for centering said drill bit in a predetermined drilling location  
3 in said surface, said centering member being retractably mounted to said drill bit and  
4 projecting from said drill bit towards said surface, said centering member including a  
5 forward end;  
6           a resilient member disposed within said centering member, to bias said centering  
7 member towards a fully extended position in which said forward end of said centering  
8 member extends past said tip of said drill bit.

1           20.   The stop of claim 19 wherein said resilient member is a spring.

1           21.   The stop of claim 19 wherein said resilient member is a resilient  
2 elastomer.

1                   22.    The stop of claim 19 wherein said forward end of said centering  
2 member has threads; and

3                   wherein said stop further comprises an alignment piece having threads on one  
4 end thereof and an aperture on an opposed end thereof, said threads of said alignment  
5 piece being configured to mate with said threads of said centering member, and said  
6 aperture being sized to accommodate the maximum diameter of said drill bit.

1                   23.    The stop of claim 22, wherein said alignment piece has a frusto-  
2 conical exterior, where said aperture is disposed at the smaller end of the frustum of  
3 said frusto-conical exterior, and said threads of said alignment piece are disposed at the  
4 opposite end of said frustum.

1                   24.    The stop of claim 22, further comprising a plurality of alignment  
2 pieces, each having an aperture having a different size, to accommodate drill bits  
3 having a plurality of different diameters.

1                   25.    The combination of a drill bit and a stop, comprising:  
2                   a drill bit capable of being rotated about an axis and having  
3                   a tip with a cutting groove for drilling into a surface, and  
4                   an end opposed to said tip along said axis for coupling said drill bit  
5                   to a drill;

6           a first sleeve for providing one of a coarse adjustment and a fine  
7 adjustment of said stop relative to said tip of said drill bit, said first sleeve being  
8 rotatable about said axis of said drill bit and having a first thread having a first pitch and  
9 adapted to engage said drill bit, and a second thread having a second pitch different  
10 from said first pitch; and

11           a second sleeve for providing the other of coarse adjustment and fine  
12 adjustment of said stop relative to said tip of said drill bit, said second sleeve being  
13 rotatable about said axis of said drill bit and having a thread adapted to engage with  
14 said second thread of said first sleeve, said second sleeve having an end proximate  
15 said drill bit tip for defining a shoulder for limiting a depth of penetration of said drill bit  
16 into said surface.

1           26. The combination of claim 25, wherein at least one of said first and  
2 second sleeves includes indicia operatively associated therewith representing the  
3 distance between said tip of said drill bit and said shoulder.

1           27. The combination of claim 26, wherein said indicia include fine  
2 adjustment indicia for monitoring fine adjustment of said distance and coarse  
3 adjustment indicia for monitoring coarse adjustment of said distance.

1           28. The combination of claim 27, wherein said fine adjustment indicia is  
2 disposed on said first sleeve so that an end of said second sleeve opposite to said

3 shoulder covers a portion of said fine adjustment indicia as said second sleeve is  
4 rotated about said first sleeve, to provide a visual indication of a fine position of said  
5 shoulder relative to said tip of said drill bit; and

6 wherein said coarse adjustment indicia is disposed on said drill bit so that an end  
7 of said first sleeve closest to said opposed end of said drill bit covers a portion of said  
8 coarse adjustment indicia as said first sleeve is rotated about said drill bit, to provide a  
9 visual indication of a coarse position of said shoulder relative to said tip of said drill bit.

1 29. The combination of claim 25, wherein said drill bit further comprises  
2 engagement threading having said first pitch and being disposed on an exterior of said  
3 drill bit between said tip and said opposed end, wherein said first sleeve engages said  
4 engagement threading on said drill bit.

1 30. The combination of claim 25, wherein said inner sleeve engages  
2 said cutting groove.

1 31. A stop for a drill bit, said drill bit having an elongate body rotatable  
2 about an axis, a tip at one end of said body for drilling into a surface, a second end of  
3 said body opposed to said tip for coupling said bit to a drill, and an engagement region  
4 on the exterior of said body between said tip and said second end, said stop  
5 comprising:



6                   a sleeve for adjusting a position of said stop relative to said tip of said drill  
7 bit, said sleeve having an inner thread adapted to engage said engagement region on  
8 said drill bit, said sleeve being rotatably mounted to said drill bit about said engagement  
9 region, said inner sleeve providing adjustment of said position of said stop with respect  
10 to said drill bit tip;

11                   said sleeve defining a shoulder for limiting a depth of penetration of said  
12 drill bit into an object.

1                   32. The stop of claim 31, wherein said sleeve has an axis of rotation  
2 which is co-incident with said axis of said drill bit.

1                   33. The stop of claim 31, wherein said engagement region is one of a  
2 cutting groove of said drill bit and an engagement threading of said drill bit.

1                   34. The stop of claim 31, wherein said sleeve includes indicia  
2 operatively associated therewith representing the distance between said tip of said drill  
3 bit and said shoulder, measured along said axis of said drill bit.

1                   35. The stop of claim 31, wherein said sleeve includes a knurled  
2 surface for providing means for gripping said sleeve to rotate said sleeve relative to said  
3 drill bit.

1                   36.    The stop of claim 31, wherein said sleeve includes at least one  
2    outwardly extending projection for providing means for gripping said sleeve to rotate  
3    said sleeve relative to said drill bit.